

**Table 4-1 Potential to Emit Criteria Pollutants**

		NOx	CO	PM10	SOx	TOC	NOx	CO	PM10	SOx	TOC
Src ID	Source	tpy	tpy	tpy	tpy	tpy	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr
<b>TRAM SCENARIO</b>											
EP101	1900-GE-901 - Generator	3.108	0.357	0.0705	1.132	0.018	12.434	1.429	0.282	4.526	0.07
EP201	1200-DC-201 - Crushing Dust Collector			0.2100					0.125		
EP301	Ore Stockpile			0.0004					0.016		
EP302	1200-LD-201- Tram Bin to Coarse Ore Stockpile			0.0022					0.001		
EP303	Loader grab from Coarse Ore Stockpile			0.0022					0.001		
EP401	Waste Rock Stockpile			0.0002					0.007		
EP402	1200-LD-201- Tram Bin to Waste Rock Stockpile			0.0010					0.002		
EP403	Loader grab from Waste Rock Stockpile			0.0289					0.009		
EP404	Loader dump Waste Rock Stockpile into Truck			0.0289					0.009		
EP501	Conc bldg tailings pile			0.0000					0.0002		
EP502	Loader grab from Tailings Stockpile			0.0005					0.0001		
EP503	Loader dump Tailings to Truck			0.0005					0.0001		
EP601	TWSF Waste Rock truck dumping			0.0010					0.0016		
EP602	TWSF area management			0.2010					0.2792		
EP603	TWSF wind erosion			0.0154					0.6044		
EP604	Truck Dumps Tailings TWSF			0.0007					0.0001		
EP901	Roads (tram scenario)			1.5856					1.0474		
EP1001	Loader Traffic			0.2497					0.1486		
EP1101	1200-BN-201 - Mined Rock to Tram Bin			0.0032					0.0016		
EP1102	1200-FE-201 - Bin to Tram			0.0032					0.0016		
EP1201	Loader drop to Primary Crusher feed bin			0.0673					0.0401		
EP1401	1200-BN-203 - Fine Ore Bin (in)			0.0049					0.0029		
EP1402	1200-BN-203 - Fine Ore Bin (out) fully enclosed			0.0000					0.0000		
EP1501	1400-SI-401 - Cement Silo (in)			0.0007					0.0068		
EP1502	1400-SI-401 - Cement Silo (out) fully enclosed			0.0001					0.0006		
EP1601	Underground emissions vented from mine mouth	4.688	18.476	1.6729	0.552		4.816	18.982	1.5575	0.567	
EP1701	Load /Unload at Topsoil stockpile			0.0001					0.0008		
EP1702	Topsoil Stockpile			0.0075					0.2940		
	<b>Total TRAM SCENARIO</b>	<b>7.8</b>	<b>18.8</b>	<b>4.1583</b>	<b>1.7</b>	<b>0.0</b>	<b>17.3</b>	<b>20.4</b>	<b>4.4388</b>	<b>5.1</b>	<b>0.1</b>
<b>NO TRAM SCENARIO</b>											
EP0901	Roads (no tram scenario)			5.7424					3.8186		
EP1301	Mined Rock truck dump			0.0032					0.0016		
EP1303	Loader grab from mined rock pile			0.0032					0.0016		

EP1304	Loader drop to Truck			0.0962					0.0481		
EP1302	Mined Rock stockpile			0.0002					0.0070		
EP2001	Truck Dump Crusher Ore Pile (no tram scenario)			0.0022					0.0013		
	<b>Total NO TRAM SCENARIO</b>	<b>7.8</b>	<b>18.8</b>	<b>8.3551</b>	<b>1.7</b>	<b>0.0</b>	<b>17.3</b>	<b>20.4</b>	<b>7.2475</b>	<b>5.1</b>	<b>0.1</b>

SUNSHINE PORTAL SCENARIO											
EP 3001	For the Sunshine Portal scenario: EP 3001 replaces EP1601.	4.688	18.47 6	1.6729	0.552	0.000	4.816	18.98 2	1.5575	0.567	0.000
EP 0902	Roads (Sunshine portal scenario)			3.7144					2.4569		
	<b>Total SUNSHINE PORTAL SCENARIO</b>	<b>7.8</b>	<b>18.8</b>	<b>6.2220</b>	<b>1.7</b>	<b>0.0</b>	<b>17.3</b>	<b>20.4</b>	<b>5.8262</b>	<b>5.1</b>	<b>0.1</b>

Yellow universally represents tram only scenario emissions  
Orange universally represents No tram scenario only emissions  
Green universally represents Sunshine Portal scenario only emissions

The emission inventory in Appendix D shows very conservative estimates of emissions of toxic air pollutants (TAPs) listed in IDAPA 58.01.01.585 or 586 from material handling operations. Those estimates assume that the percentage of each material in the ore or waste and tailings would represent the percentage those materials make up of all material handling particulate emissions. The percentage by weight of each material is documented in the assay information after the emission inventory in Appendix D, Attachment 4, from the inductively coupled plasma assays of ICP ore. The paragraphs above Table 4-1 document the conservatism in the particulate emissions estimates prepared for this application. As the TAPs in Ore Processing page in the emission inventory in Appendix D shows, only three TAPs (585 non-carcinogen cobalt, nickel, and 586 carcinogen arsenic) were found to have potential emission rates exceeding IDAPA ELs. Emissions of each of those TAPs were modeled. Model TAP emission rates are documented in Table 7-1 for each model source. With the exception of arsenic, the modeled emissions for both nickel and cobalt are orders of magnitude below the acceptable ambient concentration (AAC). The modeled emission of arsenic exceeded the acceptable ambient concentration for a carcinogen (AACC) thus requires T-RACT demonstration and is further discussed below. The derivation of those model source TAP emission rates is documented on the Totals page in the emission inventory in Appendix D.

The only other source of TAP emissions at the ICP facility will be the combustion byproducts of fuel consumed by the emergency generator. Screening levels for TAPs established in IDAPA 58.01.01.585 for non-carcinogens and IDAPA 58.01.01.586 for carcinogens are shown by Table 4-2 to be above emissions proposed from the emergency generator. This source meets the exemption criteria set forth in IDAPA 58.01.01.233. Specific emissions levels were estimated based on AP-42 factors and are provide in Table 4-2 below.

**Table 4-2 Emergency Generator Potential to Emit HAPs / TAPs**

Pollutant	EF	Hrs/yr	Units	lb/yr	tons/yr	EPA Regulated HAPs tons/yr	Max lb/hr	avg lb/hr
Benzene	7.76E-04	500	lbs/hp-hr	434.17	0.2171	0.2171	0.8683	0.0496
Toluene	2.81E-04	500	lbs/hp-hr	157.22	0.0786	0.0786	0.3144	0.0179
Xylenes	1.93E-04	500	lbs/hp-hr	107.98	0.0540	0.0540	0.2160	0.0123
Propylene	2.79E-03	500	lbs/hp-hr	1561.01	0.7805		3.1220	0.1782
Formaldehyde	7.89E-05	500	lbs/hp-hr	44.14	0.0221	0.0221	0.0883	0.0050
Acetaldehyde	2.52E-05	500	lbs/hp-hr	14.10	0.0070	0.0070	0.0282	0.0016
Acrolein	7.88E-06	500	lbs/hp-hr	4.41	0.0022	0.0022	0.0088	0.0005
Napthalene	1.30E-04	500	lbs/hp-hr	72.74	0.0364	0.0364	0.1455	0.0083
Acenaphthylene	9.23E-06	500	lbs/hp-hr	5.16	0.0026		0.0103	0.0006
Acenaphthene	4.68E-06	500	lbs/hp-hr	2.62	0.0013		0.0052	0.0003
Fluorene	1.28E-05	500	lbs/hp-hr	7.16	0.0036		0.0143	0.0008
Phenanthrene	4.08E-05	500	lbs/hp-hr	22.83	0.0114		0.0457	0.0026
Anthracene	1.23E-06	500	lbs/hp-hr	0.69	0.0003		0.0014	0.0001
Fluoranthene	4.03E-06	500	lbs/hp-hr	2.25	0.0011		0.0045	0.0003
Pyrene	3.71E-06	500	lbs/hp-hr	2.08	0.0010		0.0042	0.0002
Benz(a)anthracene	6.22E-07	500	lbs/hp-hr	0.35	0.0002		0.0007	0.0000
Chrysene	1.53E-06	500	lbs/hp-hr	0.86	0.0004		0.0017	0.0001
Benzo(b)fluoranthene	1.11E-06	500	lbs/hp-hr	0.62	0.0003		0.0012	0.0001
Benzo(k)fluoranthene	2.18E-07	500	lbs/hp-hr	0.12	0.0001		0.0002	0.0000
Benzo(a)pyrene	2.57E-07	500	lbs/hp-hr	0.14	0.0001		0.0003	0.0000
Indeno(1,2,3-cd)pyrene	4.14E-07	500	lbs/hp-hr	0.23	0.0001		0.0005	0.0000
Dibenz(a,h)anthracene	3.46E-07	500	lbs/hp-hr	0.19	0.0001		0.0004	0.0000
Benzo(g,h,i)perylene	5.56E-07	500	lbs/hp-hr	0.31	0.0002		0.0006	0.0000
Total PAH	2.12E-04	500	lbs/hp-hr	118.61	0.0593		0.2372	0.0135
Emissions in AP-42 are < values listed					1.280	0.417		

### ICP Dust Control Technology as T-RACT for IDAPA 586 TAPs included in ICP Ore and Waste Rock

#### Background

The only potential emissions of TAPs regulated in IDAPA 585 or 586 TAPs at or near IDAPA ELs at the facility are from minerals or elements that are components of the ore and to a lesser extent the waste rock and tailings, and are therefore released as components of fugitive particulate emissions during material handling.

Handling of ore and waste is a solid material handling exercise, with particle sizes up to 12 inches. Handling such materials necessarily involves large equipment such as trucks and front end loaders. Emission estimates for TAP emissions are very conservative. Those emission estimates assume that the percentage of the TAP in the ore (or by-

product) will equal the percentage of the PM emitted for each fugitive release involving ore or by-products. This is understood to be a gross overestimate of the amount of TAPs emitted, especially for arsenic and cobalt. The vast majority of those two minerals are components of the mineral cobaltite. The entire process is designed to ensure that the cobaltite is retained in the concentrated ore. The economic feasibility of the project requires that the cobaltite be captured intact as the net result of the project efforts. Cobaltite retention is expected to make the estimates of arsenic and cobalt emissions at least an order of magnitude below those included in the emission inventory for this application.

There are three main sources of emissions associated with the ore handling that potentially reach IDAPA TAP ELs. Those sources are the material gathering and transfers, the milling process, and emissions from wind erosion or management of the materials in the TWSF area. There are several locations and processes that result in emissions of PM; however, only those processes where the proposed P2 technique is applicable are described in this section (i.e. the tram loading station, the tram unloading station, and the TWSF). Processes within the mill are subject to high efficiency control devices that meet or exceed NSPS Subpart LL requirements. Consequently, processes that meet or exceed NSPS Subpart LL requirements are not included in the T-RACT discussion below.

#### EPA Clearinghouse Review

A review of the EPA Clean Air Technology Center – RACT/BACT/LAER Clearinghouse database for Mining Operations showed that there was at least one applicable site where Lowest Achievable Emission Rate (LAER) was successfully employed as a result of the modeled emission rates of PM. The site, Aggregate Industries, Sloan Quarry (ID # NV-0045) is a sand and gravel mine, an asphalt concrete plant, and a concrete batch plant. It is important to note that the Sloan Quarry was permitted as a major source for PM-10 in a non-attainment area, unlike the Idaho Cobalt Project (ICP) which is a minor source within an attainment area and is located in a remote area with limited access. To control fugitive emissions of PM at the Sloan Quarry, moisture control was employed as the pollution prevention (P2) technique. Moisture content was maintained between 4.5 to 5 percent for aggregate less than one-quarter inch in diameter during aggregate mining, handling, and transferring.

#### Base Case Description

The general process and the P2 techniques employed in the base case are described in this section. The proposed P2 technique being proposed as T-RACT involves the application of moisture to solids in order to mitigate dust production from material transfers and handling. As noted above, there is a precedent for accepting 4.5 to 5% moisture content as LAER using a P2 methodology for a major source in a nonattainment area.

Dust control will be applied at the initial point of material handling, i.e. the mine working face. Additionally, most of the mine production will originate below the ground water

table and will already contain natural moisture. At the working face, water will be applied to the freshly blasted material to suppress dust throughout the material handling process. The target moisture content of 5% water by weight will be achieved by wetting the muck pile before and during loading. If necessary, additional water will be used to wet the material in the trucks. Because the mined rock and pre-crusher materials (most of the material being transferred to generate potential emissions) will consist of large particle sizes (gravel and larger), the moisture will be concentrated in the fine fraction of the particles.

Within the mine, there are few other practical alternatives to further reduce particulate and TAP emissions. Increasing the moisture content in the mined material would not be practical because more moisture would result in more fluid material that would be harder to control and contain. Furthermore, the vast majority of underground emissions, probably far more than estimated in the emission inventory, will never exit the mine because of the large particle sizes, high humidity in the mine, and long distances between the particulate emission sources and the release point.

During the subsequent material transfers, regardless of the mined rock conveyance system (i.e. tram or no tram), the same P2 technique will be employed. The moisture content of the mined rock at the mine portal will be a target of 5% water by weight, as discussed above. Stockpiled ore and waste rock will contain at least 5% moisture, and will be processed promptly so that it will not be allowed to dry and become airborne. Should the material begin to dry and produce dust, water will be added as a matter of operational management.

The crushing and concentration processes take place indoors within the mill, with all emissions routed through a baghouse with controls exceeding NSPS Subpart LL requirements. The concentrate (product) and tailings (waste) will be stabilized at a high moisture content (~19%) which will virtually eliminate dust.

The concentrate is placed directly into fully enclosed steel bins and is then hauled off site for refining. All tailings produced during the concentration processes will have a moisture content of approximately 19%. The moist tailings will be stockpiled at the mill facility and loaded via loader grabs and drops into haul trucks. The haul trucks will then transport the tailings to the 57-acre TWSF area for deposition. The material transfers at the TWSF prompt placement and compaction of all received material on a daily basis followed by revegetation/reclamation afterward. In addition to representing P2 techniques for mine by-product management, this TWSF management plan is required for compliance with Formation's land use agreement with the USFS.

There are no additional capital costs associated with the base case.

#### Enclosure Case Description

As an alternative scenario, the enclosure of fugitive emissions sources and installation of particulate removal devices was analyzed for economic and technologic feasibility. It is

technologically feasible to enclose the fugitive emissions sources described above so that emissions could be captured and removed before the air stream is released to the environment. A technical investigation of this alternative was documented in a technical memorandum by Telesto Solutions, Inc. and is included as attachment 5, Appendix D.

The approach to controlling dust emissions at the portal site loading and unloading stations would be to construct a steel building that would enclose the portal pad area where the transfers take place and the stockpiles are located. The building also needs to be large enough to enclose the tram towers and loading bins, to be effective when the tram is in service. To enclose the loading area at the portal, the building would have a footprint of 60 feet by 60 feet, totaling 3,600 square feet, with an eave height of 25 feet on the upper bench and an eave height of 65 feet from the base of the lower tram tower.

To control emissions at the mill site loading and unloading station a second building would be constructed. To enclose the unloading area at the mill site, this building would have a footprint of 130 feet by 275 feet, totaling 35,750 square feet, with an eave height of 80 feet. The assumption was made that the structures would be pre-engineered and manufactured off-site and assembled on-site. The building would be permanently affixed to a concrete foundation and would have two 20 foot by 20 foot openings.

At the TWSF, particulate matter is generated from two sources; wind erosion from the static portions of the pile, and vehicle activity associated with placement of the tailings and waste rock. The vehicle activity (truck transport and dumping, dozer spreading, and compaction) is the larger of the two sources. The control approach would be to provide a semi-portable structure that would enclose the placement activity. The structure would be ventilated through a baghouse. The activity cycle would be to construct the temporary structure, place material inside the structure until it is impractical to place any more material inside the structure, then move the structure to a new location and begin the cycle anew.

This plan would require two structures, one for active placement and another that is being prepared for active placement. It is estimate that a newly prepared structure would be needed every two weeks. The proposed structures are Sprung type structures, chosen for their characteristics of rapid assembly and disassembly. The proposed structures would measure 120 by 200 feet.

The total cost of this alternative is \$36.8M (Telesto Solutions, 2008).

## Emission Reduction

The table below depicts the TAP arsenic emissions effected by the base case and enclosure case scenarios. Because the no-tram scenario is results in greater emission rates, emission sources related to the tram scenario were excluded from the sum. A reasonable control efficiency of 90% using baghouses was used to calculate the reduction in TAP arsenic emissions in the enclosure scenario.

**Table 4-3 Cost Comparison of Control Options**

Table 1-3 Cost Comparison of Control Options					
Source ID		PM		Arsenic	
		lbs/hr	tpy	ton/yr Base Case	ton/yr Enclosures
PORTAL					
EP1301	Mined Rock truck dump	0.002	0.003	1.68E-05	1.68E-06
EP1303	Loader grab from mined rock pile	0.002	0.003	1.68E-05	1.68E-06
EP1304	Loader drop to Truck	0.102	0.203	1.07E-03	1.07E-04
EP1302	Mined Rock stockpile	0.0146	0.0004	1.95E-06	1.95E-07
EP1101	1200-BN-201 - Mined Rock to Tram Bin	0.002	0.003	1.68E-05	1.68E-06
EP1102	1200-FE-201 - Bin to Tram	0.002	0.003	1.68E-05	1.68E-06
Total PORTAL		0.1227	0.2165		
MILL SITE					
EP2001	Truck Dump Crusher Ore Pile (no tram scenario)	0.001	0.002	1.59E-05	1.59E-06
EP301	Ore Stockpile	0.031	0.001	5.68E-06	5.68E-07
EP302	1200-LD-201- Tram Bin to Coarse Ore Stockpile	0.001	0.002	1.59E-05	1.59E-06
EP303	Loader grab from Coarse Ore Stockpile	0.001	0.002	1.59E-05	1.59E-06
EP401	Waste Rock Stockpile	0.014	0.000	2.52E-07	2.52E-08
EP402	1200-LD-201- Tram Bin to Waste Rock Stockpile	0.002	0.001	6.82E-07	6.82E-08
EP403	Loader grab from Waste Rock Stockpile	0.018	0.061	4.33E-05	4.33E-06
EP404	Loader dump Waste Rock Stockpile into Truck	0.018	0.061	4.33E-05	4.33E-06
EP1201	Loader drop to Primary Crusher feed bin	0.085	0.142	1.01E-03	1.01E-04
Total MILL SITE		0.1724	0.2732		
TWSF					
EP601	TWSF Waste Rock truck dumping	0.002	0.001	6.82E-07	6.82E-08
EP602	TWSF area management	0.372	0.268	1.90E-04	1.90E-05
EP603	TWSF wind eroision	1.209	0.031	2.18E-05	2.18E-06
EP604	Truck Dumps Tailings TWSF	0.000	0.001	4.63E-07	4.63E-08
Total TWSF		1.5828	0.3003		
				2.46E-05	2.45E-04
Reduction (tpy) = 0.0022 (lb/yr) = 4.4					
Total (ton) * = 0.024 (lb) = 48.561					
COST				\$0	\$36,800,000
COST PER TON				\$0	\$16,671,661,946
COST PER TON *				\$0	\$1,515,605,631

Represents emissions sources related to the "Tram" scenario.  
 Emission rate using moisture control as the P2 technique in the Base Case scenario.  
 Emission rate after enclosing the emission sources at the Portal, Mill Site, and TWSF. Emission rates were reduced 90% to represent a reasonable control efficiency using bag houses.

\* Assumes an 11 year mine life.

The emission reduction that could be reasonably expected from this alternative is 4.4 lb per year (0.0022 ton per year) or a total of 48.6 lb (0.024 ton) over the project life (Table 1).

### Conclusion

The discussions above describe P2 techniques that could be employed throughout the material handling, storage, and processing phases of the project. Both the base case which uses moisture control to mitigate particulate emissions and an alternative case that uses enclosures as mitigation were considered.

Implementing the alternative case would result in a cost of \$36.8M for a reduction of 0.0022 tpy of annual emissions, or a total reduction of 0.024 tons over the life of the mine (11 yrs). This is equivalent to \$16.7B per ton of annual emission reduction or a total of \$1.52B per ton of emission captured over the life of the mine. Because the reduction in TAP arsenic emissions is so small to begin with, an order of magnitude of reduction in emissions is economically prohibitive.

The extraordinary per ton cost to implement the enclosure option not economically feasible. The proposed base case controls represent the lowest emissions of the TAPs that the facility is capable of meeting by application of P2 technology that is reasonably available, considering both technologic and economic feasibility. The base case dust control P2 methodology described, state of the art for any mine, will produce the lowest emissions of TAPs that this source is capable of meeting by the application of a reasonably available and economically feasible technology. Furthermore, the techniques to be employed are consistent with the precedent set by LAER demonstration at another site in a more highly impacted area. Additionally, because the site is remote and isolated, regardless of the ambient air boundary location (claim boundaries), public exposure is extremely limited. On that basis, Formation proposes the base case methodology as T-RACT for the IDAPA 586 carcinogenic TAP arsenic in the ore and associated materials.

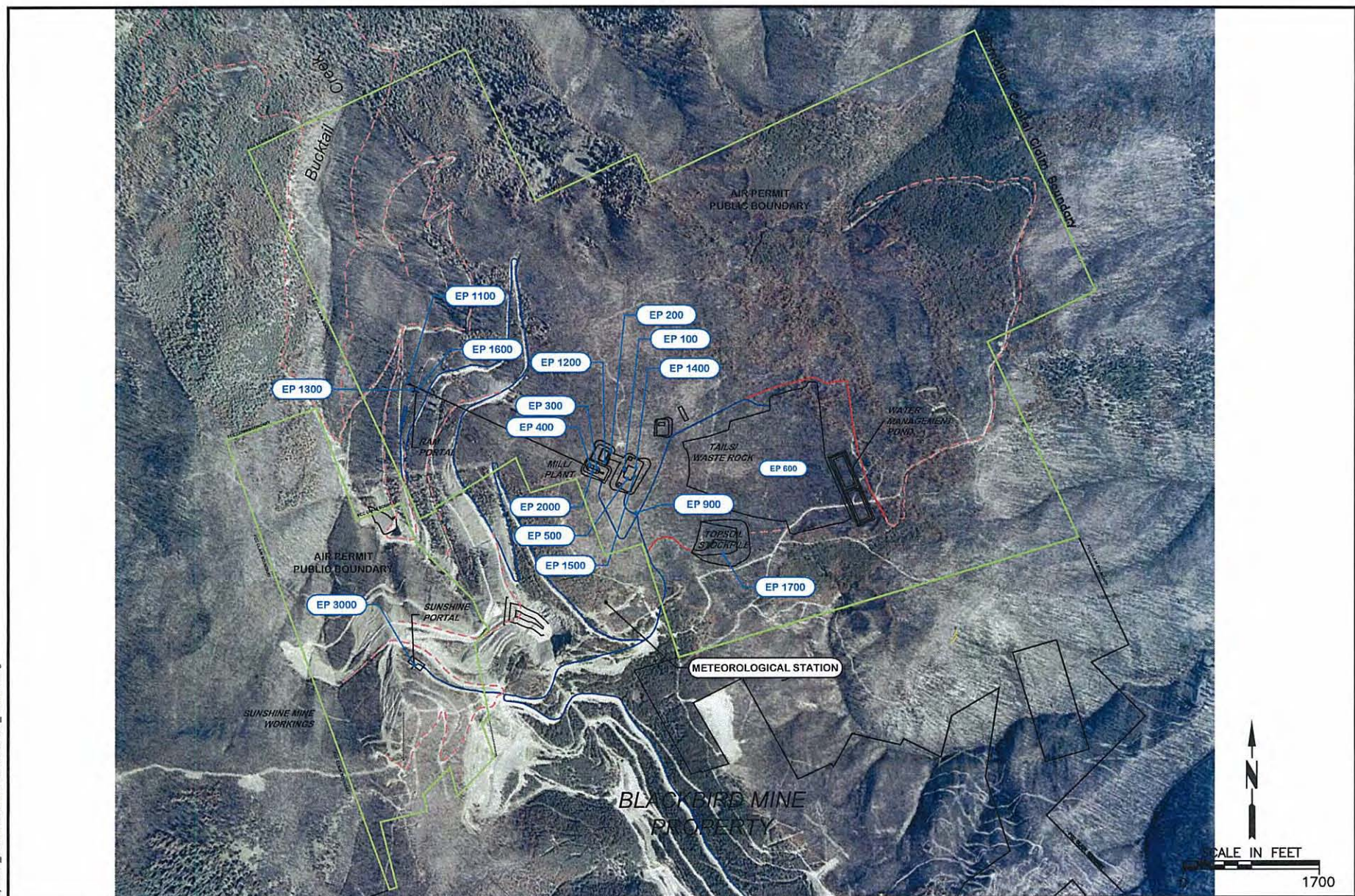
## 5.0 Facility Classification

The Idaho Cobalt Project is located in Lemhi County, which has been designated by the US EPA as “attainment” or “unclassified” for all criteria pollutants. For attainment or unclassified areas, a source is considered a Prevention of Significant Deterioration of Air Quality (PSD) Program major source if it has the potential to emit: (1) 10 tons per year or more of any hazardous air pollutant, or (2) 25 tons per year or more of combined hazardous air pollutants or, (3) 100 tons per year or more of a regulated pollutant if the source is classified as one of twenty-eight designated industrial source categories or, (4) 250 tons per year or more of a regulated pollutant from a stationary source. For the Title V Operating Permit program, a source is considered major if potential emissions exceed 100 tons per year. For HAPs, a source is considered major if it emits more than 10 tons per year of an individual HAP or more than 25 tons of HAPs per year cumulatively.

The Idaho Cobalt Project is not a designated facility and will not produce emissions in excess of any of the above thresholds. As described by the tables in Section 4 of this application, the facility’s potential to emit is sufficiently low (less than 21 tons per year for all criteria air pollutants, most of that from fugitive emission sources) for ICP to be considered a minor source of air emissions, not reaching PSD, Title V, or HAP major source thresholds. The criteria air pollutant with the highest emissions, therefore driving the facility classification, is shown by Table 4-1 to be CO. Most of the CO emissions are fugitives exiting the mine portal from underground blasting. No credit was taken for chemical degradation or transformation of CO before its exposure to ambient air, though such decreases in CO would occur. The Potential To Emit for all criteria air pollutants is less than 10 tons. Table 4-1 also shows that the vast majority of PM-10 emissions would also be fugitives.

## **6.0 Scaled Plot Plan**

The facility plot plan is included below, and is supplemented by figures 7-1 through 7-5 in the modeling report in Section 7.0 and the first of the four Process Flow Diagrams in Section 2. All figures are also provided as standalone electronic files on the accompanying CD-ROM.

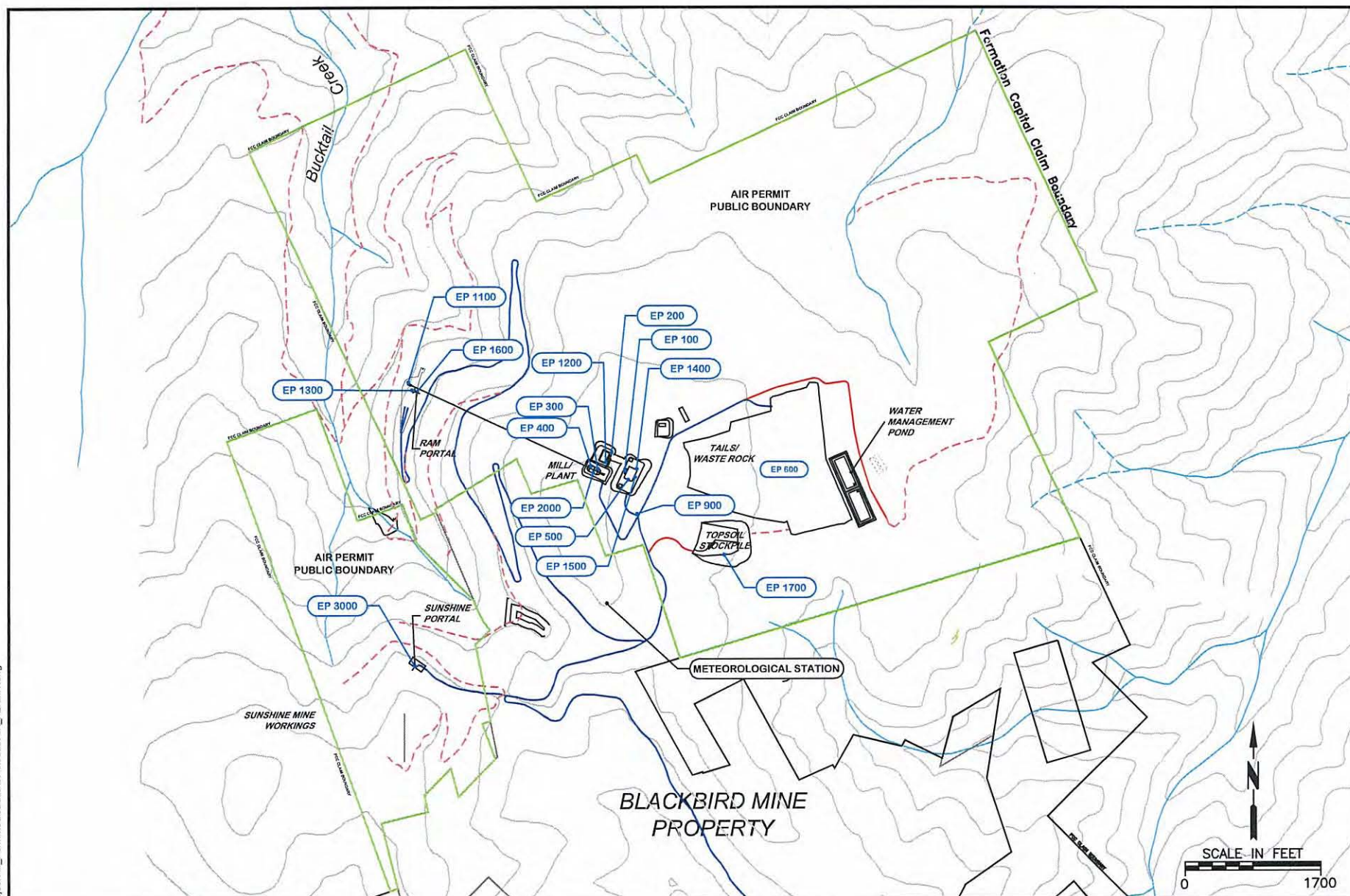


**FIGURE 6-1A  
PLOT PLAN**

IDAHO COBALT PROJECT  
AIR PERMIT APPLICATION

August 2008

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**FIGURE 6-1B  
PLOT PLAN**

IDAHO COBALT PROJECT  
AIR PERMIT APPLICATION

August 2008

## **7.0 Ambient Impact Assessment**

### **Purpose**

This section describes the modeling conducted to assess the ambient air quality impact. The modeling conducted is consistent with an IDEQ approved modeling protocol to support the proposed air permit for the Idaho Cobalt Project.

### **Model Description / Justification**

The model chosen, consistent with the IDEQ approved modeling protocol, is AERMOD, the US EPA approved model recommended by IDEQ. AERMOD has recently replaced the Industrial Source Complex model ISCST3 as the primary recommended model for facilities with multiple emission sources. AERMOD was applied as recommended in EPA's *Guideline on Air Quality Models*, consistent with guidance in IDEQ's *Air Quality Modeling Guideline*, as described and approved in the modeling protocol. Recommended regulatory default options were employed. Terrain data was processed consistent with EPA guidance for AERMAP, as documented in the IDEQ-approved modeling protocol. Meteorological data recommended for this application by Darrin Mehr of the IDEQ Monitoring, Modeling, and Emission Inventory program was supplied by IDEQ. The Prime building downwash algorithm was employed. Modeling analyses were performed for all pollutants emitted above IDEQ emission thresholds. That included PM-10, and NO<sub>2</sub>, CO and SO<sub>2</sub>, and the two toxic air pollutants (TAPs) potentially emitted at rates exceeding the IDAPA 585 or 586 TAP threshold emission level (EL). Chemical transformation of emissions was not considered. All these details were included in the IDEQ approved modeling protocol.

Final permit modeling included all recommendations included in IDEQ's modeling protocol approval which can be found in Appendix E, Attachment 1. The methodology used to respond to the IDEQ comments in the modeling protocol was documented in writing to Darrin Mehr of IDEQ (Appendix E, Attachment 2), and his approval with comments was received via email (Appendix E, Attachment 3). Copies of the modeling protocol, the IDEQ protocol approval, the responses proposed to address those IDEQ modeling protocol approval comments, and IDEQ's concurrence with those responses are included in Appendix E.

### **Emission and Source Data**

Model stack and emissions data representative of the worst case emissions at the ICP facility were incorporated directly into the air quality modeling analysis. Three operational scenarios were considered: all rock mined at the Ram portal with the tram operating, all rock mined at the Ram portal without an operating tram, and all rock mined at the Sunshine portal (with no tram). Emission rates modeled for each pollutant are the maximum emissions under proposed operations over the duration of the shortest ambient air quality standard for that pollutant. That potentially results in overestimation of longer

term emission rates for pollutants that have short term ambient air quality standards, like PM-10 and SO<sub>2</sub>.

The emission inventory was developed consistent with worst-case conditions anticipated during operation at the facility consistent with the facility operational plan. The facility emissions were conservatively estimated to exceed IDEQ modeling thresholds for criteria pollutants PM-10, CO, NO<sub>x</sub>, and SO<sub>2</sub>.

Only two stack sources are included, a dust collection bag house processing emissions inside the crusher building, and a generator for emergency power. Stack parameters for each unit were based upon manufacturer's specifications. Because project proponents are still deciding between three options for the emergency generator, each of which meet EPA Tier II requirements, the worst case parameters from any of the three being considered (highest emission rate, lowest emission temperature and flow rate, largest stack diameter) were used in the model, along with a stack conservatively assumed to be only 3 feet high. The data for each generator can be seen on the generator page of the Emission Inventory in Appendix D, Attachment 1.

The bulk of the air emissions documented in the emission inventory are fugitive emissions associated with the handling, transport and processing of ore and associated tailings. Figure 7-1 shows a project site plan.

Fugitive emissions were incorporated into the model using source size and height parameters based upon the dimensions and layout of the equipment planned to be used. Size and location data from all stationary features, including fugitive sources like ore stockpiles, were taken from project engineering plans. Transfers from mobile sources (for example, truck and tram drops) were based upon dimensions of equipment anticipated to be used at the facility. The calculation of emissions of TAPs as a weight based percentage of particulates is described in Section 4.0, and documented in more detail on worksheets TAPs from Ore Processing and Totals in the Emission Inventory in Appendix D, Attachment 1, and in electronic form on the accompanying CD-ROM. Building heights were based on roof peak heights from project engineering plans. Tank heights used are from ground base to the top of the tank from the same engineering plans. Model volume sources are used at 80 foot intervals to represent dust emissions over onsite 40 foot wide roads. Appendix E, Attachment 4, provides a summary of the BPIP-Prime input data and results documenting the building downwash parameters included in the modeling. The final building downwash information used in the modeling analysis is unchanged from that presented in the modeling protocol.

Table 7-1 summarizes the draft model source data consistent with the proposed action, under the tram ore transport scenario. Yellow highlighted sources are from the Tram scenario only. In the Ram portal scenario, the yellow highlighted sources would be replaced by the orange highlighted sources. The Sunshine portal would include the green highlighted sources, but would eliminate the EP901C road sources along the road from between the Ram portal and the crusher access road. For the shorter Sunshine mine portal scenario, hauling road emissions used the same emissions per road volume source

as for the longer Ram portal no tram scenario. The derivation of all model emissions data is documented in the emission inventory accompanying this permit application. The derivation of all model source parameters other than emission rates and mapping are documented in the emission inventory in Appendix D and in the model source data spreadsheet accompanying this application in the electronic file submission in blue print.

**Table 7-1 Model Source Data**

POINT SOURCES		Easting (X)	Northing (Y)	Base Elev	Stk Ht	Temp	Exit Vel	Stack Diam	PM TEN	PM TENA N	NOX	SO2	CO	ALUMI NUM	ARS ENIC	COBALT	NICKEL
Src ID	Source Description	(m)	(m)	(m)	(ft)	(°F)	(fps)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
EP201	dust collector baghouse stack	708194.5	5001702.3	2435.3	36	68.0	63.7	3.00	0.125	0.21				0.0126	0.0024	0.0035	2.02E-07
EP101	emergency generator	708273.1	5001662.4	2427.4	3	957.0	252.7	0.67	0.282	0.07	3.11	4.53	1.43				

AREA SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Height	East Leng	North Leng	Angle from North	Vert Dim	PM TEN	PMTEN AN	NOX	SO2	CO	ALUMI NUM	ARSE NIC	COBALT	NICKEL
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)		(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
EP1101	transf to tram bin	707417.2	5001946.0	2133.4	8.01	12.01	10.01		6.0	0.0016	0.0032				1.61E-04	1.68E-05	4.51E-05	1.92E-09
EP1102	transf from tram bin to tram	707418.8	5001947.3	2134.1	4.99	6.99	4.99		3.0	0.0016	0.0032				1.61E-04	1.68E-05	4.51E-05	1.92E-09
EP302	transf from tram to or stkpl	708143.0	5001639.3	2444.7	14.99	10.01	10.01		10.0	0.0013	0.0022				1.34E-04	1.59E-05	3.76E-05	1.34E-09
EP402	transf from tram to wst rkpl	708120.5	5001648.9	2443.5	14.99	10.01	10.01		10.0	0.0016	0.001				1.61E-04	6.82E-07	4.51E-05	5.76E-10
EP403	loader grab from WR stkpl	708121.0	5001643.0	2444.3	4.00	8.20	4.92		4.0	0.0087	0.0289				8.73E-04	4.33E-05	2.44E-04	3.66E-08
EP404	loader drop WR to truck	708119.8	5001638.0	2444.9	12.01	19.69	9.84		4.0	0.0087	0.0289				8.73E-04	4.33E-05	2.44E-04	3.66E-08
EP303	loader grab from ore stkpl	708152.0	5001651.0	2444.1	4.00	8.20	4.92	40	4.0	0.0013	0.0022				1.34E-04	1.59E-05	3.76E-05	1.34E-09
EP1001	loader traffic to PCFB	708154.0	5001654.0	2443.8	4.00	9.84	72.18	38	8.0	0.1486	0.2497							
EP503	loader drop tails to truck	708268.2	5001590.3	2425.1	12.01	19.69	9.84		4.0	1.00E-04	0.0005				6.73E-06	7.26E-07	1.88E-06	6.13E-10
EP601	WRdropt to TWSF	708815.0	5001868.3	2365.5	6.00	15.00	15.00		12.0	0.0016	0.001				1.61E-04	6.82E-07	4.51E-05	5.76E-10
EP604	Tailingsdropt oTWSF	708815.0	5001868.3	2365.5	6.00	15.00	15.00		12.0	1.00E-04	0.0007				9.07E-06	4.63E-07	2.54E-06	3.91E-10
EP2001	Notramdrop2 orestkpile	708143.0	5001639.3	2444.7	6.00	10.01	10.01		12.0	0.0013	0.0022				1.34E-04	1.59E-05	3.76E-05	1.34E-09

AREA SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Height	East Leng	North Leng	Angle from North	Vert Dim	PM TEN	PMTEN AN	NOX	SO2	CO	ALUM NUM	ARSE NIC	COBALT	NICKEL
EP1701	load/unldatto psoilstkpile	708530.0	5001430.0	2393.2	6.00	15.00	15.00		12.0	0.0008	1.20E-04							
EP1301	minetkdumpt opile	707437.7	5001916.0	2152.5	6.00	15.00	15.00		12.0	0.0016	0.0032				1.61E-04	1.68E-05	4.51E-05	1.92E-09
EP1303	loadergrabfr ompile	707430.1	5001916.5	2148.1	4.00	8.20	4.92		4.0	0.0016	0.0032				1.61E-04	1.68E-05	4.51E-05	1.92E-09
EP1304	loaderdropto oretruck	707425.6	5001918.0	2145.1	12.01	19.69	9.84		4.0	0.0481	0.0962				4.85E-03	1.07E-03	1.36E-03	1.22E-07

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTEN AN	NOX	SO2	CO	ALUMINUM	ARSENIC	COBALT	NICKEL
Source ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(lb/hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
EP901A1	RoadontositeS	708424.4	5001209.6	2413.0	5.0	37.21	5.58	0.0348	0.0231							
EP901A2	RoadontositeS	708410.3	5001229.9	2411.6	5.0	37.21	5.58	0.0348	0.0231							
EP901A3	RoadontositeS	708396.3	5001250.1	2411.3	5.0	37.21	5.58	0.0348	0.0231							
EP901A4	RoadontositeS	708382.3	5001270.4	2409.0	5.0	37.21	5.58	0.0348	0.0231							
EP901A5	RoadontositeS	708371.6	5001294.4	2405.0	5.0	37.21	5.58	0.0348	0.0231							
EP901A6	RoadontositeS	708360.9	5001318.3	2403.7	5.0	37.21	5.58	0.0348	0.0231							
EP901A7	RoadontositeS	708350.2	5001342.2	2405.9	5.0	37.21	5.58	0.0348	0.0231							
EP901A8	RoadontositeS	708341.6	5001368.1	2409.0	5.0	37.21	5.58	0.0348	0.0231							
EP901A9	RoadontositeS	708333.0	5001394.0	2411.7	5.0	37.21	5.58	0.0348	0.0231							
EP901A10	RoadontositeS	708324.4	5001419.8	2414.1	5.0	37.21	5.58	0.0348	0.0231							
EP901A11	RoadontositeS	708316.5	5001440.1	2415.4	5.0	37.21	5.58	0.0348	0.0231							
EP901A12	RoadontositeS	708308.7	5001460.3	2416.6	5.0	37.21	5.58	0.0348	0.0231							
EP901A13	RoadontositeS	708300.9	5001480.5	2417.9	5.0	37.21	5.58	0.0348	0.0231							
EP901A14	RoadontositeS	708283.7	5001498.6	2421.3	5.0	37.21	5.58	0.0348	0.0231							
EP901A15	RoadontositeS	708266.6	5001516.8	2424.6	5.0	37.21	5.58	0.0348	0.0231							
EP901A16	RoadontositeS	708249.5	5001535.0	2427.4	5.0	37.21	5.58	0.0348	0.0231							

VOLUME SOURCES		Easting (X)	North (Y)	Base Elevatio n	Rel Ht	Horizo ntal Dimen sion	Vertic al Dime nsion	PM TEN	PMTENA N	NOX	SO2	CO	ALUMIN UM	ARSE NIC	COBALT	NICKEL
EP901B1	RoadtoCrushcon cblgds	708172.5	5001601.6	2442.0	5.0	37.21	5.58	0.0983	0.0653							
EP901B2	RoadtoCrushcon cblgds	708171.0	5001575.7	2442.0	5.0	37.21	5.58	0.0983	0.0653							
EP901B3	RoadtoCrushcon cblgds	708169.5	5001549.9	2441.6	5.0	37.21	5.58	0.0983	0.0653							
EP901B4	RoadtoCrushcon cblgds	708168.0	5001524.0	2441.4	5.0	37.21	5.58	0.0983	0.0653							
EP901B5	RoadtoCrushcon cblgds	708180.5	5001500.4	2439.6	5.0	37.21	5.58	0.0983	0.0653							
EP901B6	RoadtoCrushcon cblgds	708193.0	5001476.8	2437.3	5.0	37.21	5.58	0.0983	0.0653							
EP901B7	RoadtoCrushcon cblgds	708205.5	5001453.3	2435.6	5.0	37.21	5.58	0.0983	0.0653							
EP901B8	RoadtoCrushcon cblgds	708222.7	5001435.8	2432.9	5.0	37.21	5.58	0.0983	0.0653							
EP901B9	RoadtoCrushcon cblgds	708240.0	5001418.3	2430.1	5.0	37.21	5.58	0.0983	0.0653							
EP901B10	RoadtoCrushcon cblgds	708257.2	5001400.8	2427.4	5.0	37.21	5.58	0.0983	0.0653							
EP901D1	RoadtoTWSFar ea	708330.0	5001538.5	2415.0	5.0	37.21	5.58	0.0361	0.0240							
EP901D2	RoadtoTWSFar ea	708340.3	5001563.1	2414.5	5.0	37.21	5.58	0.0361	0.0240							
EP901D3	RoadtoTWSFar ea	708350.6	5001587.7	2413.8	5.0	37.21	5.58	0.0361	0.0240							
EP901D4	RoadtoTWSFar ea	708360.9	5001612.3	2412.9	5.0	37.21	5.58	0.0361	0.0240							
EP901D5	RoadtoTWSFar ea	708371.2	5001636.9	2411.4	5.0	37.21	5.58	0.0361	0.0240							
EP901D6	RoadtoTWSFar ea	708381.5	5001661.5	2409.8	5.0	37.21	5.58	0.0361	0.0240							
EP901D7	RoadtoTWSFar ea	708391.8	5001686.1	2407.9	5.0	37.21	5.58	0.0361	0.0240							
EP901D8	RoadtoTWSFar ea	708402.5	5001710.5	2406.5	5.0	37.21	5.58	0.0361	0.0240							
EP901D9	RoadtoTWSFar ea	708413.2	5001734.9	2403.9	5.0	37.21	5.58	0.0361	0.0240							
EP901D10	RoadtoTWSFar ea	708423.8	5001759.3	2401.4	5.0	37.21	5.58	0.0361	0.0240							

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTENA N	NOX	SO2	CO	ALUMINUM	ARSENIC	COBALT	NICKEL
EP901D11	RoadtoTWSFar ea	708443.7	5001776.5	2399.5	5.0	37.21	5.58	0.0361	0.0240							
EP901D12	RoadtoTWSFar ea	708463.6	5001793.7	2398.3	5.0	37.21	5.58	0.0361	0.0240							
EP901D13	RoadtoTWSFar ea	708483.5	5001810.9	2396.8	5.0	37.21	5.58	0.0361	0.0240							
EP901D14	RoadtoTWSFar ea	708506.8	5001823.9	2395.2	5.0	37.21	5.58	0.0361	0.0240							
EP901D15	RoadtoTWSFar ea	708530.1	5001836.8	2393.7	5.0	37.21	5.58	0.0361	0.0240							
EP901D16	RoadtoTWSFar ea	708553.4	5001849.8	2392.6	5.0	37.21	5.58	0.0361	0.0240							
EP901D17	RoadtoTWSFar ea	708576.7	5001862.7	2391.8	5.0	37.21	5.58	0.0361	0.0240							
EP901D18	RoadtoTWSFar ea	708600.0	5001875.7	2390.6	5.0	37.21	5.58	0.0361	0.0240							
EP901D19	RoadtoTWSFar ea	708623.3	5001888.7	2388.2	5.0	37.21	5.58	0.0361	0.0240							
EP901D20	RoadtoTWSFar ea	708646.6	5001901.6	2384.7	5.0	37.21	5.58	0.0361	0.0240							
EP901D21	RoadtoTWSFar ea	708669.9	5001914.6	2381.0	5.0	37.21	5.58	0.0361	0.0240							
EP901D22	RoadtoTWSFar ea	708693.2	5001927.5	2378.7	5.0	37.21	5.58	0.0361	0.0240							
EP901D23	RoadtoTWSFar ea	708718.6	5001922.5	2376.1	5.0	37.21	5.58	0.0361	0.0240							
EP901D24	RoadtoTWSFar ea	708743.9	5001917.5	2373.2	5.0	37.21	5.58	0.0361	0.0240							
EP901D25	RoadtoTWSFar ea	708769.3	5001912.5	2370.3	5.0	37.21	5.58	0.0361	0.0240							
EP901C1	RoadonsiteNpor talarea	707622.2	5001602.9	2288.9	5.0	37.21	5.58	0.0367	0.0244							
EP901C2	RoadonsiteNpor talarea	707615.1	5001628.4	2286.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C3	RoadonsiteNpor talarea	707607.9	5001654.0	2283.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C4	RoadonsiteNpor talarea	707600.8	5001679.6	2280.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C5	RoadonsiteNpor talarea	707604.0	5001706.0	2281.3	5.0	37.21	5.58	0.0367	0.0244							

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTEN N	NOX	SO2	CO	ALUMIN UM	ARSE NIC	COBALT	NICKEL
EP901C6	RoadonsiteNpor talarea	707607.2	5001732.3	2281.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C7	RoadonsiteNpor talarea	707610.3	5001758.7	2279.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C8	RoadonsiteNpor talarea	707616.5	5001784.5	2277.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C9	RoadonsiteNpor talarea	707622.7	5001810.4	2273.9	5.0	37.21	5.58	0.0367	0.0244							
EP901C10	RoadonsiteNpor talarea	707628.9	5001836.2	2271.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C11	RoadonsiteNpor talarea	707649.5	5001852.2	2277.2	5.0	37.21	5.58	0.0367	0.0244							
EP901C12	RoadonsiteNpor talarea	707670.0	5001868.2	2280.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C13	RoadonsiteNpor talarea	707690.5	5001884.2	2279.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C14	RoadonsiteNpor talarea	707714.4	5001896.0	2279.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C15	RoadonsiteNpor talarea	707738.3	5001907.7	2277.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C16	RoadonsiteNpor talarea	707762.2	5001919.5	2273.2	5.0	37.21	5.58	0.0367	0.0244							
EP901C17	RoadonsiteNpor talarea	707783.7	5001935.0	2267.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C18	RoadonsiteNpor talarea	707805.2	5001950.6	2260.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C19	RoadonsiteNpor talarea	707826.8	5001966.2	2257.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C20	RoadonsiteNpor talarea	707840.4	5001988.7	2254.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C21	RoadonsiteNpor talarea	707854.0	5002011.2	2248.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C22	RoadonsiteNpor talarea	707867.6	5002033.7	2252.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C23	RoadonsiteNpor talarea	707866.9	5002060.1	2249.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C24	RoadonsiteNpor talarea	707866.3	5002086.5	2246.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C25	RoadonsiteNpor talarea	707865.7	5002113.0	2241.3	5.0	37.21	5.58	0.0367	0.0244							

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTEN N	NOX	SO2	CO	ALUMIN UM	ARSE NIC	COBALT	NICKEL
EP901C26	RoadonsiteNpor talarea	707860.1	5002139.0	2239.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C27	RoadonsiteNpor talarea	707854.6	5002165.1	2241.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C28	RoadonsiteNpor talarea	707849.0	5002191.1	2241.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C29	RoadonsiteNpor talarea	707844.5	5002217.4	2245.2	5.0	37.21	5.58	0.0367	0.0244							
EP901C30	RoadonsiteNpor talarea	707839.9	5002243.7	2247.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C31	RoadonsiteNpor talarea	707835.4	5002269.9	2246.9	5.0	37.21	5.58	0.0367	0.0244							
EP901C32	RoadonsiteNpor talarea	707830.5	5002296.1	2244.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C33	RoadonsiteNpor talarea	707825.6	5002322.3	2240.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C34	RoadonsiteNpor talarea	707820.6	5002348.4	2236.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C35	RoadonsiteNpor talarea	707819.2	5002374.9	2236.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C36	RoadonsiteNpor talarea	707817.9	5002401.3	2236.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C37	RoadonsiteNpor talarea	707816.5	5002427.7	2235.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C38	RoadonsiteNpor talarea	707809.7	5002410.6	2232.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C39	RoadonsiteNpor talarea	707803.0	5002393.5	2228.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C40	RoadonsiteNpor talarea	707796.3	5002376.4	2224.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C41	RoadonsiteNpor talarea	707796.5	5002349.7	2221.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C42	RoadonsiteNpor talarea	707796.8	5002323.1	2219.9	5.0	37.21	5.58	0.0367	0.0244							
EP901C43	RoadonsiteNpor talarea	707797.0	5002296.5	2220.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C44	RoadonsiteNpor talarea	707796.0	5002269.8	2220.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C45	RoadonsiteNpor talarea	707795.0	5002243.2	2220.5	5.0	37.21	5.58	0.0367	0.0244							

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTENA N	NOX	SO2	CO	ALUMIN UM	ARSE NIC	COBALT	NICKEL
EP901C46	RoadonsiteNpor talarea	707794.0	5002216.5	2218.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C47	RoadonsiteNpor talarea	707793.0	5002189.9	2214.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C48	RoadonsiteNpor talarea	707792.0	5002163.2	2209.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C49	RoadonsiteNpor talarea	707791.0	5002136.6	2203.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C50	RoadonsiteNpor talarea	707786.3	5002110.8	2201.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C51	RoadonsiteNpor talarea	707781.6	5002085.0	2200.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C52	RoadonsiteNpor talarea	707776.9	5002059.3	2204.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C53	RoadonsiteNpor talarea	707754.0	5002047.0	2203.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C54	RoadonsiteNpor talarea	707731.1	5002034.7	2204.9	5.0	37.21	5.58	0.0367	0.0244							
EP901C55	RoadonsiteNpor talarea	707708.3	5002022.4	2211.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C56	RoadonsiteNpor talarea	707681.9	5002020.5	2208.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C57	RoadonsiteNpor talarea	707655.6	5002018.6	2203.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C58	RoadonsiteNpor talarea	707629.3	5002016.7	2197.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C59	RoadonsiteNpor talarea	707603.5	5002010.0	2194.0	5.0	37.21	5.58	0.0367	0.0244							
EP901C60	RoadonsiteNpor talarea	707577.7	5002003.3	2194.2	5.0	37.21	5.58	0.0367	0.0244							
EP901C61	RoadonsiteNpor talarea	707551.9	5001996.6	2193.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C62	RoadonsiteNpor talarea	707535.7	5001976.1	2195.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C63	RoadonsiteNpor talarea	707519.5	5001955.7	2192.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C64	RoadonsiteNpor talarea	707503.3	5001935.3	2184.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C65	RoadonsiteNpor talarea	707493.3	5001910.5	2184.2	5.0	37.21	5.58	0.0367	0.0244							

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTENA N	NOX	SO2	CO	ALUMIN UM	ARSE NIC	COBALT	NICKEL
EP901C66	RoadonsiteNpor talarea	707483.4	5001885.8	2185.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C67	RoadonsiteNpor talarea	707473.4	5001861.1	2187.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C68	RoadonsiteNpor talarea	707461.2	5001837.4	2186.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C69	RoadonsiteNpor talarea	707449.1	5001813.7	2183.9	5.0	37.21	5.58	0.0367	0.0244							
EP901C70	RoadonsiteNpor talarea	707436.9	5001789.9	2178.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C71	RoadonsiteNpor talarea	707429.6	5001764.4	2175.2	5.0	37.21	5.58	0.0367	0.0244							
EP901C72	RoadonsiteNpor talarea	707422.3	5001738.9	2171.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C73	RoadonsiteNpor talarea	707415.1	5001713.5	2167.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C74	RoadonsiteNpor talarea	707413.8	5001686.9	2167.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C75	RoadonsiteNpor talarea	707412.6	5001660.4	2166.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C76	RoadonsiteNpor talarea	707411.4	5001633.9	2158.8	5.0	37.21	5.58	0.0367	0.0244							
EP901C77	RoadonsiteNpor talarea	707410.1	5001607.3	2154.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C78	RoadonsiteNpor talarea	707408.7	5001580.6	2151.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C79	RoadonsiteNpor talarea	707404.8	5001606.9	2150.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C80	RoadonsiteNpor talarea	707401.0	5001633.2	2149.6	5.0	37.21	5.58	0.0367	0.0244							
EP901C81	RoadonsiteNpor talarea	707397.1	5001659.5	2153.1	5.0	37.21	5.58	0.0367	0.0244							
EP901C82	RoadonsiteNpor talarea	707395.6	5001686.1	2153.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C83	RoadonsiteNpor talarea	707394.2	5001712.7	2152.7	5.0	37.21	5.58	0.0367	0.0244							
EP901C84	RoadonsiteNpor talarea	707392.7	5001739.3	2151.4	5.0	37.21	5.58	0.0367	0.0244							
EP901C85	RoadonsiteNpor talarea	707397.9	5001773.5	2153.0	5.0	37.21	5.58	0.0367	0.0244							

VOLUME SOURCES		Easting (X)	Northing (Y)	Base Elevation	Rel Ht	Horizontal Dimension	Vertical Dimension	PM TEN	PMTENA N	NOX	SO2	CO	ALUMINUM	ARSENIC	COBALT	NICKEL
EP901C86	RoadonsiteNportalarea	707403.1	5001807.8	2154.2	5.0	37.21	5.58	0.0367	0.0244							
EP901C87	RoadonsiteNportalarea	707408.3	5001842.0	2153.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C88	RoadonsiteNportalarea	707408.9	5001868.6	2148.3	5.0	37.21	5.58	0.0367	0.0244							
EP901C89	RoadonsiteNportalarea	707409.5	5001895.3	2142.5	5.0	37.21	5.58	0.0367	0.0244							
EP901C90	RoadonsiteNportalarea	707410.1	5001922.0	2135.1	5.0	37.21	5.58	0.0367	0.0244							
EP1201	primay crusher feed bin	708170.3	5001673.2	2441.1	15.0	5.58	6.99	0.0401	0.0673				4.04E-03	1.01E-03	1.13E-03	8.54E-08
EP502	loadfromaili stklptotk	708271.2	5001601.8	2424.9	5.0	4.66	6.99	0.0001	0.0005				6.73E-06	7.26E-07	1.88E-06	6.13E-10
EP1401	fine ore bin vent	708286.0	5001657.5	2424.7	61.0	1.41	28.38	0.0029	0.0049				2.94E-04	3.48E-05	8.22E-05	2.94E-09
EP1501	cement silo intakevent	708283.6	5001612.6	2423.6	48.0	1.41	22.31	0.0068	0.0007							
EP1601	mineventforUGemiss	707454.0	5001918.0	2161.0	7.5	13.95	6.98	1.5575	1.6729	4.688	0.567	18.982	2.50E-03	5.43E-04	7.01E-04	6.20E-08
EP1502	cement silo outflowfugs	708280.6	5001612.6	2424.0	48.0	1.41	22.31	0.0006	0.0001							
EP3001	Sunshineportal	707425.9	5000906.0	2384.6	7.5	13.95	6.98	1.5575	1.6729	4.688	0.567	18.982	2.50E-03	5.43E-04	7.01E-04	6.20E-08
EP9021	Sunshportalaccrdsegment	707716.4	5000832.9	2364.8	5.0	37.21	5.58	0.1082	0.0720							
EP9022	Sunshportalaccrdsegment	707689.3	5000838.6	2362.6	5.0	37.21	5.58	0.1082	0.0720							
EP9023	Sunshportalaccrdsegment	707662.1	5000844.3	2362.3	5.0	37.21	5.58	0.1082	0.0720							
EP9024	Sunshportalaccrdsegment	707635.0	5000850.0	2364.5	5.0	37.21	5.58	0.1082	0.0720							
EP9025	Sunshportalaccrdsegment	707607.9	5000855.7	2365.4	5.0	37.21	5.58	0.1082	0.0720							
EP9026	Sunshportalaccrdsegment	707580.7	5000861.4	2369.5	5.0	37.21	5.58	0.1082	0.0720							
EP9027	Sunshportalaccrdsegment	707553.6	5000867.1	2375.7	5.0	37.21	5.58	0.1082	0.0720							
EP9028	Sunshportalaccrdsegment	707527.5	5000876.3	2381.4	5.0	37.21	5.58	0.1082	0.0720							